



**National
Transportation
Safety Board**

Awakening a Nation: A Call to Action

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Board Member**

**Sleep Health & Safety 2014
National Sleep Foundation
November 7, 2014**



- 1) determining the probable cause of transportation accidents**
- 2) making recommendations to prevent their recurrence**



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All Modes



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NTSB Most Wanted List

MOST WANTED LIST

The Most Wanted List represents the NTSB's advocacy priorities. It is designed to increase awareness of, and support for, the most critical changes needed to reduce transportation accidents and save lives.

ELIMINATE SUBSTANCE-IMPAIRED DRIVING



A generation ago, the NTSB investigated the nation's deadliest impaired driving crash, which killed 27 and injured dozens. Since then, more than 300,000 people have perished at the hands of impaired drivers. Much more must be done to address the senseless deaths of more than 10,000 people every year.

AIRPORT SURFACE OPERATION

BUS SAFETY

ELIMINATE DISTRACTION

FIRE SAFETY

GENERAL AVIATION SAFETY

INFRASTRUCTURE

PIPELINE SAFETY

POSITIVE TRAIN CONTROL

SUBSTANCE-IMPAIRED DRIVING

COLLISION AVOIDANCE



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2011

FATALITIES

(the most recent government statistics available)

9,878 in *impaired driving crashes*

800 in marine accidents

759 in rail accidents

494 in aviation accidents



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REACHING ZERO

Actions to Eliminate Substance-Impaired Driving



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Challenges of a 24/7 Society



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MOST WANTED LIST

A program to increase the public's awareness of, and support for, action to adopt safety steps that can help prevent accidents and save lives. The following are ten of the current issues.



Addressing Human
Fatigue



General Aviation
Safety



Safety Management
Systems



Runway Safety



Bus Occupant Safety



Pilot & Air Traffic
Controller
Professionalism



Recorders



Teen Driver Safety



Addressing Alcohol-
Impaired Driving



Motorcycle Safety



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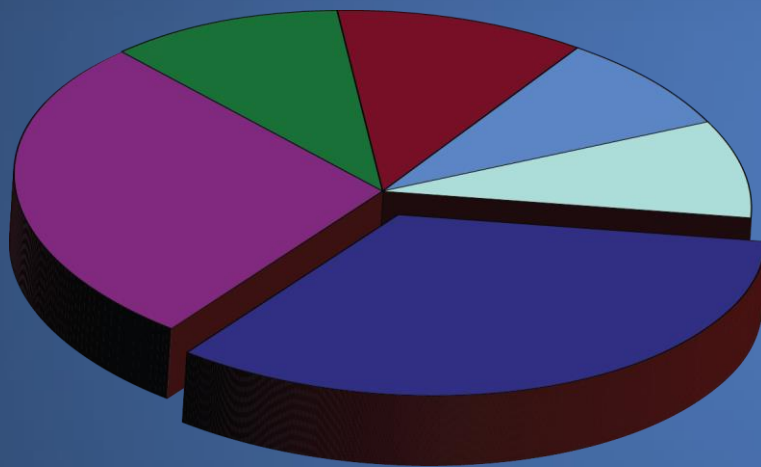
NTSB Recommendations

- MOST WANTED 1990 - 2011
- >200 fatigue recommendations



Complex Issue:

Requires Multiple Solutions



- Scheduling Policies and Practices
- Education/Awareness
- Organizational Strategies
- Healthy Sleep
- Vehicle and Environmental Strategies
- Research and Evaluation



NTSB: October 21, 2014



Overcoming the Dangers of
DROWSY DRIVING

National Transportation Safety Board Forum



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The Panels

- Scope of the problem
- Workplace issues
- Novice drivers
- Health issues
- In-vehicle/roadway issues
- Countermeasures/future directions



Scope of the Problem (Dinges and Tefft)

> 1M crashes?
100K crashes?
7,500 lives lost?
1,000 lives lost?
7-24% of crashes
400K crashes?
5,000 lives lost?
~40% drivers fallen asleep

Grossly underestimated



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Workplace Issues (Pratt, Flower, Violanti)

- Driving at work
- Commuting to/from work
- Work hours
- Shift/irregular schedules
- Insufficient/poor sleep
- Work force to resources
- Combined with air travel
- Training/education
- Investigations
- Communications
- In-vehicle cameras
- Industry demands
- “Just-in-time” commuting
- Requirements outside work



Novice Drivers (Carskadon and Watson)

Teen crashes

Teen biology

School start times

Education

Teen sleep

Technology

Consistency

Psychosocial context

Graduated licensing

Teen driving



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Health Issues

(Ohayon, Gurubhagavatula, Farkas)

- 13.4M Americans sleepy while driving
- Sleepy drivers ~2X more likely to crash
- Multiple medical conditions cause sleepiness
- Diagnosis/treatment of sleep disorders
- 85% sleep apnea cases undiagnosed
- Treatments effective
- Crash risk with other sleep disorders less known
- Risks associated with prescription/OTC medications
- Risks associated with med combinations/interactions
- Fewer 'crash'/driving safety studies



In-vehicle/Roadway Issues (Sgambati, Monk, Savolainen)

Impairment

Vehicle monitoring

Rest stops

NHTSA: 6 sec predict!

Rumble strips

Warning vs. action

Roadway design

Driver monitoring

Feedback?



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Countermeasures/Future Directions (Czeisler, Nelson, Pack, Popkin)

- Outstanding
- Thoughtful
- Provocative

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Drowsy Driving . . .



Surrogate
&
Symbol



- Safety, health, performance, and mood risks created by our sleep-deprived society



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Societal Barriers: Attitudes and Actions

“I’ll sleep when I’m dead.”



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The Challenges

- Scope/cost of the problem
- Workplace/school issues
- Developmental/age changes
- Health issues
- Design/technology (+/-)
- Countermeasures/future directions



Good sleep will enhance:

- safety
 - health
 - performance
 - mood





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